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(54) NONAQUEOUS ELECTROLYTE SECONDARY BATTERY AND MANUFACTURE THEREOF

(57)Abstract:

PURPOSE: To provide a new nonaqueous electrolyte secondary battery excellent in a charge/discharge characteristic at high voltage with high energy density further with a long cycle life and a method of manufacturing this battery.

CONSTITUTION: In a nonaqueous electrolyte secondary battery comprising at least

positive/negative electrodes and a lithium ion conductive nonaqueous electrolyte, as a negative electrode active material, a composite oxide, represented by a composition formula $\text{Li}_x\text{Si}_{1-y}\text{M}_y\text{O}_z$ (where $0 \leq x$, $0 < y < 1$, $0 < z < 2$) to contain lithium of silicon Si with a metal except alkaline metal or similar metal M except silicon, is used. In this way, the secondary battery, having low poor potential of the negative electrode active material, large charge/discharge capacity in a poor potential region of 0 to 1V relating to metal lithium, high voltage high energy density, further excellence in a large current charge/discharge characteristic, also small deterioration by an overcharge/overdischarge and a long cycle life, is obtained.

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